

WHAT IS CLAIMED IS:

- 1 1. An information processing system, comprising:
 - 2 a first processor, receiving input data and creating a pixel data stream
 - 3 provided over a first channel and a second channel, the first channel providing a signal to
 - 4 affect the output of a pixelated display, the second channel including location information
 - 5 and symbol information; and
 - 6 a second processor coupled to the first processor, the second processor
 - 7 receiving the location information and the symbol information from the first processor,
 - 8 and the second processor receiving the input data, the second processor computes a
 - 9 derived version of the inputs based on the location information and the symbol
 - 10 information.
- 1 2. The information processing system of claim 1, wherein the first processor
- 2 comprises a symbol generator.
- 1 3. The information processing system of claim 1, wherein the first processor
- 2 comprises a graphics engine.
- 1 4. The information processing system of claim 1, wherein the pixelated
- 2 display comprises a liquid crystal display.
- 1 5. The information processing system of claim 1, wherein the pixelated
- 2 display comprises an information source for a heads-up display (HUD).
- 1 6. The information processing system of claim 1, wherein the input data
- 2 comprises aircraft sensor data.
- 1 7. The information processing system of claim 1, wherein the input data
- 2 comprises aircraft control surface data.
- 1 8. The information processing system of claim 1, wherein the derived
- 2 version is computed using an inverse process.

1 9. The information processing system of claim 1, wherein the second
2 processor compares the input data and the derived version of the inputs.

1 10. The information processing system of claim 1, further comprising:
2 a third channel over which pixel data is provided from the first processor.

1 11. The information processing system of claim 10, wherein the first channel
2 corresponds to a red color channel.

1 12. The information processing system of claim 1, wherein the second channel
2 corresponds to a blue color channel.

1 13. The information processing system of claim 1, wherein the third channel
2 corresponds to a green color channel.

1 14. The information processing system of claim 1, further comprising:
2 a third channel over which pixel data is provided from the first processor;
3 and
4 a fourth channel over which pixel data is provided from the first processor.

1 15. The information processing system of claim 14, wherein the fourth
2 channel corresponds to a symbol monitoring channel.

1 16. A method of providing integrity checking for a pixelated display device,
2 comprising:
3 receiving input data by a first processor;
4 generating drawing instructions for a graphics engine;
5 outputting pixel data to a detector;
6 receiving, by a display, at least some of the pixel data over a first channel;
7 receiving over a second channel, by a symbol monitor, at least some of the
8 pixel data; and
9 receiving the input data by the symbol monitor.

1 17. The method of claim 16, further comprising:

2 generating derived input information based on the pixel data received over
3 the second channel.

1 18. The method of claim 17, further comprising:
2 comparing the derived input information with the input information.

1 19. The method of claim 18, further comprising:
2 issuing an error warning if the comparison is not within a predefined
3 threshold.

1 21. An information processing system, comprising:
2 a first processing means, receiving input data and creating a pixel data
3 stream provided over a first channel and a second channel, the first channel providing a
4 signal to affect the output of a display, the second channel including location information
5 and symbol information; and
6 a second processing means coupled to the first processing means, the
7 second processing means receiving the location information and the symbol information
8 from the first processing means and the second processing means receiving the input
9 data, the second processing computes a derived version of the inputs based on the
10 location information and the symbol information.

1 22. The information processing system of claim 21, wherein the first
2 processing means comprises a symbol generator.

1 23. The information processing system of claim 21, wherein the first
2 processing comprises a graphics engine.

1 24. The information processing system of claim 21, wherein the pixelated
2 display comprises a liquid crystal display.

1 25. The information processing system of claim 21, wherein the pixelated
2 display comprises an information source for a heads-up display (HUD).

1 26. The information processing system of claim 21, wherein the input data
2 comprises aircraft sensor data.

1 27. The information processing system of claim 21, wherein the input data
2 comprises aircraft control surface data.

1 28. The information processing system of claim 21, wherein the derived
2 version is computed using a matrix inversion process.

1 29. The information processing system of claim 21, wherein the second
2 processing means compares the input data and the derived version of the inputs.

1 30. The information processing system of claim 21, further comprising:
2 a third channel over which pixel data is provided from the first processing
3 means.

1 31. The information processing system of claim 30, wherein the first channel
2 corresponds to a red color channel.

1 32. The information processing system of claim 30, wherein the second
2 channel corresponds to a blue color channel.

1 33. The information processing system of claim 30, wherein the third channel
2 corresponds to a green color channel.

- 1 34. The information processing system of claim 21, further comprising:
- 2 a third channel over which pixel data is provided from the first processing
- 3 means; and
- 4 a fourth channel over which pixel data is provided from the first
- 5 processing means.